Re: FW: noncancer dioxin
Elizabeth Allen to: POULSEN Mike 02/22/2012 08:29 AM

Weeeeellllll, there is this: http://www.epa.gov/raf/files/tefs-for-dioxin-epa-00-r-10-005-final.pdf

Apparently, the argument is that while some dioxin-like effects may be caused by ligand binding other than the Ah receptor, that falls under the "we really don't know fer sure" category. Thus, all toxic effects of the unfortunate new acronym DLCs (dioxin-like compounds) stem from Ah binding, and thus the TEFs apply. The 2010 date on this leads me to suspect that it was prepared in conjunction with the updated noncancer assessment, but I'd have to read it (or ask someone who has) to verify that. It's on the to-do list, but not this week.

So, nothing to see here. Move along.

Thanks, and please resume your regularly scheduled programming...

E

POULSEN Mike Elizabeth - Check the exchanges below to see if... 02/22/2012 07:49:59 AM

From: POULSEN Mike <POULSEN.Mike@deq.state.or.us>
To: Elizabeth Allen/R10/USEPA/US@EPA
Date: 02/22/2012 07:49 AM
Subject: FW: noncancer dioxin

Elizabeth -

Check the exchanges below to see if this addresses your question about noncancer dioxin. Actually, I think the RfD should apply to total dioxin, or else the risk is trivial. But I don't recall the details of what we did for PH. And I haven't had time to look back into this, so I thought I would send this email to stall for time.

- Mike

-----Original Message-----
From: POULSEN Mike
Sent: Thursday, July 10, 2008 5:15 PM
To: 'Bailey.Marcia@epamail.epa.gov'
Subject: RE: noncancer dioxin

Marcia -

It looks to me that dioxin cancer effects will win out over non-cancer effects, even with the breastfeeding pathway. For adults, a concentration resulting in a 1E-6 risk has an HQ of 0.016 (alternatively, at a cancer risk of 60E-6, the HQ is 1). For a breastfeeding infant, coincidently, the cancer risk to the infant (if that means anything) is about the same as the risk to the mother. At a 1E-6 risk to the mother, the HQ for the breastfeeding infant is 0.5. So the cancer and non-cancer risks are much closer, but cancer still drives by about a factor of 2. That's if you use 1E-6 as the acceptable level, like in Oregon. For EPA sites, non-cancer effects may win out if you consider risks of 1E-5 or 1E-4 acceptable.

A couple of other thoughts: When I said that I don't think the MRL is conservative enough, I was referring to the total PCB MRL, not the dioxin MRL. I still don't know what to do about that, but Deborah Rice is now looking at

our breastfeeding memo, and I hope to ask her about my concerns with the PCB MRL.

Also, it is not clear to me that the TEFs would necessarily apply to both cancer and non-cancer effects. I think the TEFs are mostly based on binding affinity, and if the activation mechanism is different for the cancer v. non-cancer effects, then the TEFs may not apply to non-cancer. Having said that, I think you heard from the EPA and ATSDR people working on this that the TEFs do apply to the MRL. That's fine with me; my point is that I didn't know the answer until you found out. The ATSDR document didn't address the (rather important) issue.

By the way, we should get our screening level comments to you next week. Our tox group discussed them on Wednesday.

- Mike

-----Original Message-----
From: Bailey.Marcia@epamail.epa.gov [mailto:Bailey.Marcia@epamail.epa.gov]
Sent: Thursday, July 10, 2008 4:08 PM
To: POULSEN Mike
Subject: Fw: noncancer dioxin/hanfo

Hi Mike,
It doesn't appear Damon immediately considered the breast milk pathway. Do you think the noncancer will prevail over cancer in terms of cleanup levels? I haven't done any calculations yet.

Marcia

----- Forwarded by Marcia Bailey/R10/USEPA/US on 07/10/2008 04:06 PM -----

"Delistraty, Damon A. (ECY)" <DDEL461@ECY.WA.GOV>		To
	Marcia Bailey/R10/USEPA/US@EPA	
		cc
07/10/2008 11:16 AM	"Rochette, Beth (ECY)" <Broc461@ECY.WA.GOV>, "McCormack, Craig (ECY)" <cmcc461@ECY.WA.GOV>	
		Subject
	RE: noncancer dioxin/hanfo	

Hi Marcia,

Thanks for the updates on the media screening table and noncancer dioxin TEFs (with potential application to Hanford). I guess it makes sense that TEFs should apply to both cancer and noncancer toxicity, since TEFs are derived from a variety of both cancer and noncancer endpoints. However, using ATSDR's chronic oral MRL (1E-6 ug/kg-d=1E-9 mg/kg-d) as an oral RfD vs. HEAST oral slope factor (1.5E5 [mg/kg-d]-1)) for 2,3,7,8-TCDD, it appears that the limiting CUL will still be for cancer. For example, the MTCA Method B soil ingestion CUL for 2,3,7,8-TCDD is 1.1E-5 mg/kg (cancer) vs. 1.3E-4 mg/kg (noncancer), using these toxicity factors.

Also, thanks for giving Dana the Lance Armstrong book. Yeah, the medical

descriptions were pretty scary, but his battle was inspiring too.

Damon

-----Original Message-----
From: Bailey.Marcia@epamail.epa.gov [mailto:Bailey.Marcia@epamail.epa.gov]
Sent: Monday, July 07, 2008 3:17 PM
To: Delistraty, Damon A. (ECY)
Subject: noncancer dioxin/hanfo

Hi Damon,

EPA has a new "regional" media screening table web site that is being supported through ORNL. http://epa-prgs.ornl.gov/chemicals/index.shtml

It came to my attention that there are acute, intermediate and chronic MRLs for 2,3,7,8-TCDD available from ATSDR, which are Tier 3 values in EPA's OSWER tox hierarchy (after IRIS and PPRTVs). The table noted above includes the chronic MRL as an RfD.

I have inquired to ATSDR (dioxin chemical manager) and Michael De Vito at EPA and both have said that the WHO TEFs are applicable for the noncancer values.

So....big deal here....I am using that at the Yakima Hops RCRA site (dioxins/furans are the main soil contaminants) and I think we should for Hanford as well. I have shared this information with Mike Poulsen at ODEQ and he agrees it is appropriate and will use it for Portland Harbor.

Mike thinks the MRL may be non-conservative as it is based on lethality, but for the meantime it at least gives us a much-needed tool to further evaluate dioxins, furans and dioxin-like PCBs.

Thoughts? I can send you the emails from ATSDR and De Vito if you like. I have been encouraging Pete Kmet and Craig McCormack to include CalEPA and ATSDR and valid sources of tox info in the upcoming MTCA amendments.

I talked to Dana this morning and she read the Lance Armstrong book over the weekend. She liked it but said his chemo routine was terrifying. She is seeing her oncologist as I write this to find out what hers will be.

Marcia